AGRICULTURE & FOOD PROCESSING INDUSTRY

SKILL GAP ANALYSIS

Northwest Policy Center
University of Washington
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EXECUTIVE SUMMARY

The agriculture and food processing industry—which employs about 230,000 workers in the Northwest states of Idaho, Oregon, and Washington, equal to 4.7 percent of all employment in the region—is undergoing significant change, the result of global competition, increased use of technology, and restructuring in the industry. The trend is toward fewer but larger firms, and a smaller but more highly skilled workforce.

As a result, the agriculture and food processing industry is not projected to be a major source of growth in employment in the decade ahead. In all three Northwest states, total employment is expected to expand more rapidly than employment in agriculture and food processing.

Most of the largest agriculture and food processing occupations—farmworkers, farm equipment operators, graders and sorters, cannery workers, hand packers, machine operators, forklift operators, and machinery maintenance mechanics—are projected to grow slowly or decline. They will, however, generate thousands of job openings as people leave the field. At the same time, demand is expected to grow for occupations such as electronics technicians and Programmable Logic Control technicians. However, the overall number of workers needed to meet this demand will be relatively small.

Currently, agriculture and food processing employers are having significant difficulty hiring and retaining skilled and semi-skilled workers, according to results of an agriculture and food processing employer survey conducted by the Northwest Policy Center at the University of Washington's Evans School of Public Affairs. Eighty six percent of food processing employers and 80 percent of agriculture employers report difficulty hiring skilled and semi-skilled workers. Sixty two percent of food processing employers and 56 percent of agriculture employers report difficulty retaining these workers.

In general, employers are having less difficulty hiring and retaining entry level workers.

Other survey results include:

- Skilled mechanics, technicians, and machine operators are the occupations for which employers report the most difficulty hiring and retaining workers. These are also the occupations for which they expect demand to grow in the next five years.

- Most employers—61 percent—train and promote entry level workers from within the company as their primary source of skilled and semi-skilled workers. This is followed by hiring experienced workers from other employers, either in the agriculture and food processing industry or other industries (22 percent).

  Only five percent identify graduates from high schools, community and technical colleges, private technical institutes, and/or four year colleges as their primary sources of skilled and semi-skilled workers.

- Workers in agriculture and food processing lack a range of skills. Almost 60 percent of employers report their current workforce lacks general academic skills such as reading, writing, math, computer skills, and critical thinking skills. This is followed by communication skills (32 percent), operating/ inspection/testing (27 percent), cleaning and maintenance (25 percent), and employability skills (24 percent).

Food processing employers are somewhat more likely to report skill gaps.

- A significant portion of employers reports their current workforce has limited English proficiency. This is particularly the case for agriculture employers.

About one third of employers are familiar with industry skill standards, according to results of the survey. However, follow up interviews suggest few actually use them. Among the reasons employers cite for not using industry skill standards: they are not user friendly; they are either too broad or too narrow; and they are not a universal standard, which limits their usefulness. In addition, some employers are not aware of skill standards.

Strategies for closing skill gaps in the agriculture and food processing industry, and addressing its training needs include:

- Make industry skill standards user friendly and provide employers easy to use tools (e.g., skill checklists, assessment tools, and brief handbooks).

- Conduct outreach around industry skill standards to promote greater awareness and understanding of skill standards among employers and workers, and provide firms tools and technical support to aid in their implementation of skill standards and/or their adaptation for company specific use (e.g., resource materials, videos, and trainers).

- Pilot implementation of industry skill standards with a firm or group of firms, in partnership with community colleges and/or other agencies. Documenting the benefits of skill standards could motivate other firms to use them.

- Expand adult basic education and English as a second language instruction, tied to the further education and training required to move into more skilled occupations.

- Provide incumbent workers retraining and upgrade training, which is of growing importance given the industry practice of training and promoting entry level workers into more skilled occupations and the trend toward greater skill requirements (due in part to the increased use of technology). This includes providing workers incentives to take part in training (e.g., career advancement and wage progression opportunities, pay increases, and paid time for training).

- Make training more accessible to employers and workers by providing training at convenient times and locations (e.g., intensive onsite training, distance learning, and mobile training units). One possible approach is to use facilities in rural communities to take training to employers and workers in those communities, rather than requiring individuals to travel long distances to community colleges after work. This could be done in partnership with local industry.

- Create career/wage ladders in broad skill areas, so that entry level workers can move into higher wage, higher skill occupations, and make these ladders transparent, so that workers can clearly see the benefits of further education and training. The lack of clear career/wage ladders may contribute to the difficulty employers are having hiring and retaining workers.

INTRODUCTION

As part of the Eastern Washington Agriculture and Food Processing Partnership's efforts to close skill gaps in the industry and address its training needs, the Northwest Policy Center at the University of Washington's Evans School of Public Affairs researched and analyzed the following questions:

- What's the outlook for the agriculture and food processing industry, and what factors affect this outlook?
- What trends and changes are taking place in the agriculture and food processing industry, and what are their workforce implications?
- How are these trends and changes affecting demand for unskilled, semi-skilled, and skilled workers?
- What are the demographics of the agriculture and food processing industry's workforce?
- What degree of difficulty are employers in the agriculture and food processing industry having hiring and retaining skilled workers?
- What are the agriculture and food processing industry's skill and training needs, now and in the future?
- How and to what extent are skill standards currently being used in the agriculture and food processing industry?
- What are strategies for closing skill gaps and addressing training needs?

In examining these questions, NPC used a variety of research tools, including a survey of all members of the Northwest Food Processors Association and a sample of members of the Washington Growers League; interviews with agriculture and food processing employers and workers; analysis of labor market data and information; and interviews with key sectoral actors (e.g., trade associations, training providers, etc.).

AGRICULTURE & FOOD PROCESSING INDUSTRY OVERVIEW

LABOR MARKET & ECONOMIC ANALYSIS

In 2000, the agriculture and food processing industry employed about 230,000 workers in the Northwest states of Idaho, Oregon, and Washington, equal to 4.7 percent of all employment in the region. In Washington, agriculture and food processing employment totaled almost 128,000 or 4.7 percent of the state's workforce, as shown below. About 87,000 were employed in agriculture and 41,000 in food processing. In Oregon, agriculture and food processing employment totaled almost 67,000 or about 4.1 percent of the state's workforce. About 43,000 were employed in agriculture and 24,000 in food processing. In Idaho, agriculture and food processing employment totaled about 35,000, or 6.2 percent of the state's workforce. About an equal number were employed in agriculture and food processing.*

Agriculture & Food Processing Industry Employment, 2000

SIC Title	Firms	Average Annual Employment	Average Annual Payroll
Idaho			
Agriculture	*	17,408	$19,039
Food Processing	*	17,252	$29,056
All Industries		562,839	$27,712
Oregon			
Agriculture	3,538	42,606	$19,230
Food Processing	490	23,861	$27,938
All Industries		1,607,911	$32,776
Washington			
Agriculture	11,598	86,749	$16,629
Food Processing	863	40,942	$31,928
All Industries		2,703,237	$37,070

Average annual payroll in agriculture ranged from a low of $16,629 in Washington to a high of $19,230 in Oregon, and in food processing, from a low of $27,938 in Oregon to a high of $31,928 in Washington. Annual average payroll figures for agriculture and food processing fall below statewide averages for all industries, with the exception of food processing in Idaho.

Over the past decade, employment in agriculture has grown in the Northwest, although at a slower than average rate. During the same time, employment in food processing has remained relatively flat.

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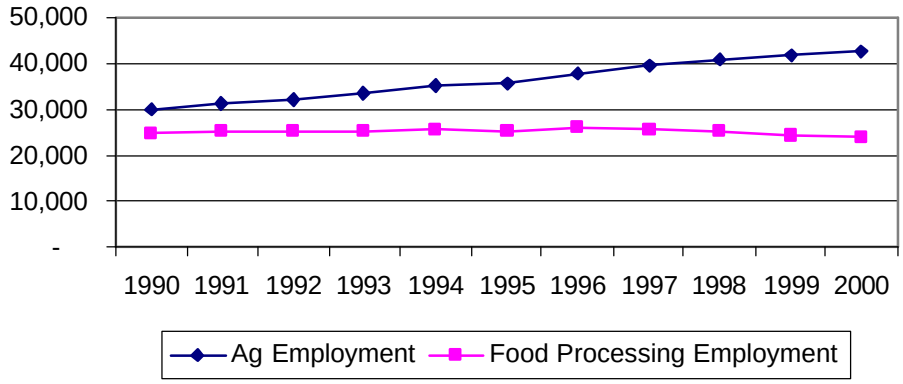
* Data in this section are drawn from the Employment Security agencies in Idaho, Oregon, and Washington, primarily Covered Employment and Payroll reports.

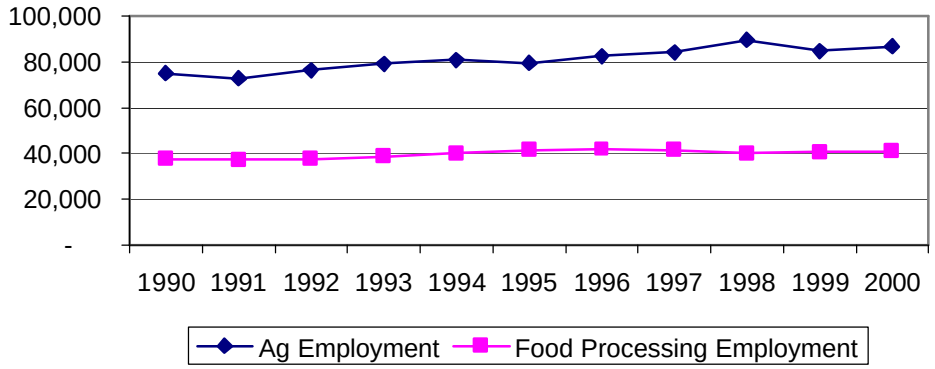
In Oregon, agriculture employment grew steadily over the last 10 years, from about 29,900 in 1990 to about 42,600 in 2000, or 42 percent, as shown below.* This compares to an overall employment growth rate of 30 percent. During the same time, the number of firms grew from about 2,330 in 1990 to about 3,540 in 2000. By contrast, food processing employment grew from about 24,700 in 1990 to about 25,900 in 1996, but then started to decline, dropping to about 23,900 in 2000. The number of firms followed much the same pattern, growing from about 450 in 1990 to 520 in 1996, and then dropping to 490 in 2000.

Oregon Agriculture & Food Processing Employment, 1990-2000



In Washington, agriculture employment grew from about 75,200 in 1990 to about 86,700 in 2000, or 15 percent, as shown below. This compares to an overall employment growth rate of 25 percent. During the same time, the number of firms dropped slightly, from about 12,000 in 1990 to about 11,600 in 2000. As in Oregon, food processing employment grew during the first half of the decade, but then started to decline. Unlike Oregon, though, food processing employment in Washington ended the decade higher, growing from about 37,600 in 1990 to about 40,900 in 2000, or nine percent. Likewise, the number of firms grew from about 750 in 1990 to 925 in 1996, and then dropped to about 860 in 2000.

Washington Agriculture & Food Processing Employment, 1990-2000



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* For annual average employment and firms in Oregon and Washington from 1990 to 2000, see Appendix A.

Major agriculture subsectors in the Northwest, based on employment figures, include fruits, vegetables, field crops, and dairy farms. Major food processing subsectors include canned, frozen, and preserved fruits and vegetables, bakery products, and fresh or frozen fish. Others subsectors include dairy products, meat products, and beverages.

Some areas of the Northwest are more heavily dependent on the agriculture and food processing industry, particularly the region's rural areas. For example, in Washington's Yakima Valley, almost one out of every four workers is employed in agriculture and food processing; in Oregon's Hood River Valley, the figure is one out of five.*

Employment in agriculture is concentrated in a few occupations, most of which require limited education and training, and pay less than $10 an hour. In Washington, for example, almost half of all agriculture employment is in a single occupation—farmworkers, food and fiber crops, which requires little education and training (less than one month of on the job training) and pays a median wage of $6.33 an hour, as shown below. Other major occupations include farmworkers who take care of farm and ranch animals, farm equipment operators, graders and sorters, pruners, and hand packers and packagers.

The occupational distribution for food processing is more dispersed, with the 10 largest occupations in Washington constituting 41 percent of the sector's workforce compared to 78 percent in agriculture. Major occupations include cannery workers, packaging machine operators, hand packers, meat cutters, helpers and laborers, machinery maintenance mechanics, and industrial truck and tractor operators. Education and training requirements for these occupations range from little to short term (up to one year of on the job, employer provided, and/or community college training), to moderate (anywhere from one year to less than four years of education and training, including on the job, employer provided, community college, and apprenticeship training). Most pay more than $10 an hour.

Largest Agriculture & Food Processing Occupations in Washington State

	1998 Employment	Ed & Training	Median Wage
Agriculture			
Farmworkers, Food & Fiber Crops	39,966	Little	$6.33
Farmworkers, Farm & Ranch Animals	5,415	Little	$7.62
Farm Equipment Operators	4,842	Little	$7.53
Grades & Sorters, Agricultural Products	3,087	Little	$7.14
First Line Supervisors & Managers, Ag	2,411	Moderate	$17.75
Pruners	2,356	Little	$11.22
Hand Packers & Packagers, Ag	2,373	Little	$10.03
Laborers, Landscaping & Groundskeeping	2,007	Little	$9.51
Sprayers & Applicators	1,627	Little	$11.94
All Other Agricultural & Related Workers	1,059	Little	$9.85
Total	83,360		

*For detailed county by county employment data, see Appendix B.

Largest Agriculture & Food Processing Occupations in Washington State

	1998 Employment	Ed & Training	Median Wage
Food Processing			
Cannery Workers	3,374	Little	$7.70
Packaging Machine Operators	2,415	Short Term	$10.49
Hand Packers	2,264	Little	$7.37
Meat Cutters	2,148	Little	$8.10
All Other Helpers & Laborers	1,654	Little	$10.11
First Line Supervisors, Prod & Operating	1,146	Moderate	$19.14
All Other Machinery Maintenance Mechanics	1,069	Moderate	$19.62
Industrial Truck & Tractor Operators	1,052	Little	$12.61
Truck Drivers, Heavy & Tractor-Trailer	749	Short Term	$15.11
Bakers, Manufacturing	645	Short Term	$12.20
Total	40,419		

Historically, the Northwest has had a number of competitive advantages in terms of the agriculture and food processing industry. These include access to water and power at very competitive rates, an excellent transportation system for moving products to market, and an available and affordable labor supply.

In the future, the agriculture and food processing industry is not projected to be a major source of growth in the workforce.* In all three Northwest states, total employment is expected to expand more rapidly than employment in agriculture and food processing. However, projections vary by state and sector, as shown below. Idaho expects 12 percent growth in agricultural jobs, while Washington projects no change, from 1998 to 2008. (Oregon's projections for 2000 to 2010 do not include agricultural jobs.) In food processing, Idaho projects four percent growth from 1998 to 2000, while Washington expects 10 percent growth. Oregon, on the other hand, projects about a five percent drop in food processing employment from 2000 to 2010.

Agriculture & Food Processing Industry Projections

SIC Title	Current Employment	Projected Employment	Numeric Change	Percent Change
Idaho	1998	2008		
Agriculture Production	17,140	19,270	2,130	12.4%
Food & Kindred Products	17,280	17,980	700	4.1%
All Industries	600,750	786,680	185,930	30.9%
Oregon	2000	2010		
Food & Kindred Products	23,900	22,800	-1,100	-4.6%
All Industries (Nonfarm)	1,602,700	1,803,000	200,300	12.5%
Washington	1998	2008		
Agriculture Production	66,452	66,479	27	0.0%
Food & Kindred Products	40,419	44,467	4,048	10.0%
All Industries	3,058,072	3,618,900	560,828	18.3%

* For detailed industry and occupation projections, see Appendix C.

Projections also vary by subsector. For example, in Washington, employment in preserved fruits and vegetables is expected to grow 15 percent from 1998 to 2008. By contrast, employment in bakery products is projected to remain unchanged.

Factors affecting the industry outlook include:

- *Global competition.* Increasingly, Northwest agriculture and food processing firms are competing with firms from other countries. Foreign competitors have entered a number of markets, including apples and several grain crops, putting pressure on prices received at the farm gate.

- *Increased use of technology.* The increased use of technology has made it possible for agriculture and food processing firms to increase productivity without increasing employment, or even with significant declines in employment.

- *Restructuring in the industry.* Vertical integration and stronger quality demands in the food processing industry—particularly from firms serving large restaurant and fast food chains, and large grocery store distributors—has put price and quality pressures on farmers and reduced the number of independent operators in food processing.

Taking all of these factors into account, the trend in the agriculture and food processing industry is toward fewer but larger firms over time, and a smaller but more highly skilled workforce as investment in sophisticated technology becomes a survival strategy for firms experiencing stringent cost and quality constraints.

This overall economic context is important to keep in mind in assessing the workforce, training, and skill requirements of the agriculture and food processing industry.

Turning to occupational projections, job openings due to growth are expected to be modest. For example, most of the largest agriculture and food processing occupations in Washington are projected to grow slowly or decline from 2000 to 2010. They will, however, generate thousands of job openings as people leave the field. For example, the overall number of farm equipment operators in the state is expected to decline, but this occupation will still create almost 200 job openings a year.

These estimates suggest that education and training demand exists for targeted occupations such as machinery maintenance mechanics and farm equipment mechanics.

In addition, employers surveyed as part of this project report a growing demand for skilled occupations such as electronics technicians, Programmable Logic Control technicians, and skilled mechanics.* However, the number of workers needed to meet this demand will be relatively small. (Estimates of the actual number of workers employed in these occupations in the agriculture and food processing industry as well as projected job openings are not available because they are too small to show up in occupation by industry matrices; they are grouped with other, broader occupational categories; and/or they are not captured by existing occupational classification systems.)

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* Survey results are reported in more detail in the Workforce Issues section of this report.

WORKFORCE DEMOGRAPHICS

Most agricultural workers in the Northwest are Hispanic, as in the case throughout the US. One study of Washington's farmworker population found that:

- Sixty nine percent are Hispanic; 27 percent are white.
- Seventy percent are men.
- Fifty eight percent are between the ages of 24 and 44; 32 percent are between the ages of 35 and 44.
- Forty two percent have one to seven years of education; 18 percent have 12 years of education.*

In 2001, agricultural workers in Washington earned an average of about $8,800 a year and worked about 860 hours a year. About 30 percent combine work in agriculture with work in other industries; these workers earn more and work more hours a year than those who work solely in agriculture (about $12,550 and 1,200 hours a year versus about $7,300 and 730 hours a year).

These findings are consistent with a national survey of agricultural workers, commissioned in response to the Immigration and Reform Control Act of 1996, that found the following characteristics of workers tending and harvesting fruits, vegetables, nursery, field, and other crops in the US:

- Ninety percent are Hispanic, mostly from Mexico.
- Eighty percent are men.
- Two thirds are under the age of 35.
- Over half are not authorized to work in the US.
- The median education level is six years.
- Employment is not, for the most part, year round; many work in agriculture for 24 weeks out of the year and outside agriculture for another five.
- Most are low income; half earn less than $7,500 a year.**

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* Findings are from the Washington Employment Security Department's report, *Agricultural Workforce in Washington State 2000* (Olympia, August 2001). The report is based on information from Unemployment Insurance records and special surveys.

** Findings are from the US Department of Labor's report, *National Agricultural Workers Survey, 1997-98: A Demographic and Employment Profile of United States Farmworkers, Research Report No. 8* (Washington, D.C.: March 2000).

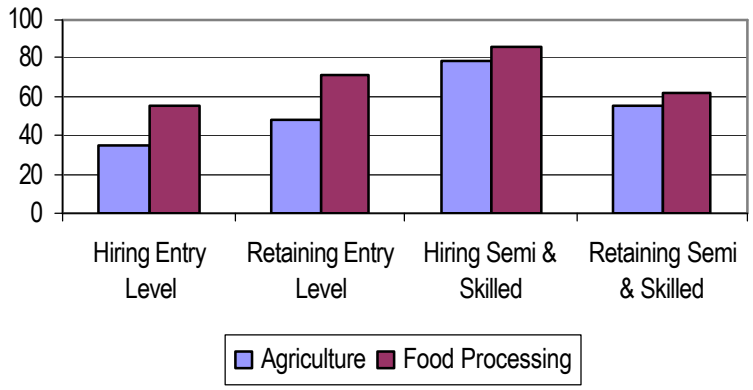
WORKFORCE ISSUES

HIRING & RETENTION

Employers are having significant difficulty hiring skilled and semi-skilled workers, according to the results of NPC's survey of Northwest Food Processors Association and Washington Growers League members. Eighty six percent of food processing employers and 80 percent of agriculture employers report difficulty hiring skilled and semi-skilled workers, as shown in the chart below. A higher portion of food processing employers report considerable difficulty hiring skilled and semi-skilled workers.*

Retention of skilled and semi-skilled workers is also an issue. Sixty two percent of food processing employers and 56 percent of agriculture employers report difficulty retaining skilled and semi-skilled workers.

Percentage of Employers Having Difficulty Hiring & Retaining Workers



In general, employers are having less difficulty hiring and retaining entry level workers. For example, only 35 percent of agriculture employers report difficulty hiring entry level workers. However, food processing employers report retention of entry level workers is more of an issue than retention of skilled and semi-skilled workers. Seventy one percent report difficulty retaining entry level workers, compared to 62 percent for skilled and semi-skilled workers.

Occupations for which agriculture and food processing employers report the most difficulty hiring and retaining workers, based on survey results, are skilled mechanics, technicians, and machine operators. Specific occupations include:

- Electronics technicians
- Programmable Logic Control (PLC) technicians
- Skilled electricians

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* For complete survey results, see Appendix D.

- Mechanics (Levels I, II, and III)
- Operators (machine/process)

These are also the occupations for which employers expect demand to grow in the next five years.

Among the occupations for which demand is expected to decline are inspection/sorters, packaging technicians, irrigation technologists, sanitation workers, and farm managers.

SOURCES OF SKILLED & SEMI-SKILLED WORKERS

Most employers—61 percent—report their primary source of skilled and semi-skilled workers is training and promoting entry level workers from within the company. This is followed by hiring experienced workers from other employers, either in the agriculture and food processing industry or other industries (22 percent); and hiring off the street (seven percent).

Only five percent identify graduates from high schools, community and technical colleges, private technical institutes, and/or four year colleges as their primary sources of skilled and semi-skilled workers.

These findings—along with the industry trend toward greater skill requirements, due in part to increased use of technology—suggest a growing gap between the skills of entry level workers and those required of more skilled occupations. As a result, opportunities exist for community colleges to provide upgrade training to entry level workers, so they can move into these more skilled occupations. Training needs to be made readily accessible to those who are working, and combine on the job training and classroom based instruction (e.g., apprenticeships).

SKILL &TRAINING NEEDS

Workers in agriculture and food processing lack a range of skills, according to results of the industry survey. About 60 percent of employers report their current workforce lacks general academic skills such as reading, writing, math, computer skills, and critical thinking skills. Almost one third report they lack communication skills. About one quarter report they lack the skills required to operate production equipment or inspection/ testing processes; the skills required to clean and maintain equipment or the work environment; and employability skills such as punctuality, work ethic, and personal integrity.

Employers' Unmet Skill Needs

General Academic Skills	58%
Communication	32%
Operating/Inspection/Testing	27%
Cleaning & Maintenance	25%
Employability Skills	24%
Administration/Record Keeping/Quality Control	19%

Food processing employers are somewhat more likely to report skill gaps. For example, 66 percent of food processing employers report their current workforce lacks general academic skills, compared to 51 percent of agriculture employers.

Most employers report they are likely to use on the job training to meet their unmet skill needs. The exception is general academic skills, where they expect to use on the job training, community and technical colleges, community organizations, and/or private training providers. Firms with 100 or more employees

are somewhat more likely to report that they expect to use community and technical colleges to meet their unmet general academic skill needs.

Among the reasons employers cite for not using community colleges are:

- the system is too complicated and difficult to navigate;
- community colleges lack training specific to their needs;
- training is too expensive, especially given tight profit margins; and
- training is not accessible (e.g., classes are unavailable after work hours, community colleges are located too far from the plant, and/or workers are too tired after work to take classes).

In addition, a significant portion of employers reports their current workforce has limited English proficiency. This is particularly the case for agriculture employers. About 90 percent of agriculture employers report that at least 40 percent of their workforce cannot read English at an adequate level; and about 80 percent report that at least 40 percent of their workforce cannot speak English at an adequate level. Comparable figures for food processing employers are 44 and 34 percent, respectively.

This speaks to the need for English as a second language (ESL) instruction, especially tied to the further education and training required to move into the skilled occupations for which employers have unmet needs.

SKILL STANDARDS

About one third of agriculture and food processing employers are familiar with industry skill standards, according to employer survey results. Food processing employers are much more likely to be familiar with skill standards. Fifty eight percent of food processing employers are familiar with skill standards, compared to 14 percent of agriculture employers.

Food processing employers familiar with skill standards report they are most useful for making decisions about training (68 percent said they were very or somewhat useful in making such decisions), followed by employee performance (62 percent), employment (62 percent), and pay (47 percent).

Follow up interviews with employers suggest that although a number of employers are familiar with industry skill standards, few actually use them.*

Of the limited number of employers that report using some type of skill standards, some developed their own company specific standards prior to the development of industry skill standards. Others used industry skill standards as a guide in developing their own company specific standards, tailoring them to meet their needs. Still others did not use industry skill standards in developing their own company specific standards, finding them difficult to use or not geared to their needs. None reported using industry skill standards as is.

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* An estimated 50 follow up interviews were conducted with agriculture and food processing firms, most of which had been identified by NPC's survey or industry contacts as being familiar with industry skill standards.

Among the reasons employers cite for not using industry skill standards are:

- *Not user friendly.* The most frequently cited reason for not using industry skill standards is that they are not user friendly; they are viewed as cumbersome and confusing. Several employers report that they needed assistance "translating" the information for practical, day to day use.

  Said one employer, "we just don't have time to sit down and figure out how to make them work." Said another, "it seems like they're a good idea, but I need to understand how to make them work."

- *Too broad or too narrow.* Some employers report that industry skill standards are too broad; they need something more specific to their industry and/or occupations. Others, however, report that they are too narrow, for example, focusing only on higher skill occupations in which they employ few, if any, workers.

- *Lack of universality.* Industry skill standards are not a universal standard, which limits their usefulness to employers, unions, and training providers.

  Said one employer, "they aren't useful to me unless they become a 'universal language.' If community colleges were training based on them, plants were using them, and unions were familiar with them, then they'd be a viable option."

- *Limited access.* Some employers are not aware of the existence of industry skill standards. And those that are may not share them with their plant managers, human resource managers, and operations managers.

Another issue is the target audience for industry skill standards. Small and medium sized firms tend to lack the infrastructure to implement them, and large firms can—and, in at least some instances, do—develop their own company specific standards, tailored to meet their needs.

Interviews with plant managers, human resource managers, and operations managers at several firms that have developed their own company specific standards identified the following uses for these standards:

- *Promotion.* The most common reason for developing and using company specific standards is to ensure that firms have a sufficient pool of workers to promote into higher skill jobs. A number of firms report developing skill standards for their skilled and semi-skilled jobs, which are then translated into training programs to make it possible for entry level workers to get the training required to move into these jobs.

- *Training.* As noted above, a number of firms use their company specific standards to identify the skills required to move from entry level to skilled and semi-skilled jobs, and then develop training programs that allow entry level workers to move into higher skill jobs.

- *Job descriptions.* Firms also use their company specific standards to develop job descriptions, which serve to clarify expectations for both workers and supervisors. In particular, the growing use of technology has increased the need for clear job specifications.

- *Hiring.* Some firms use skill standards to screen job applicants.

- *Compensation.* A few firms use skill standards for compensation purposes, tying compensation to skills.

- *Performance evaluation.* Some firms use their skill standards to evaluate worker performance.

- *Legal protection.* A number of firms also use their skill standards to protect themselves from legal action (e.g., discrimination suits).

The benefits of company specific standards, according to firms that have them, are several: increased ease and fairness in hiring and promotion, greater clarity in compensation, a clear pathway that allows entry level workers to move into higher skill jobs, increased productivity, higher job retention rates, fewer workplace injuries, and a more objective performance review system.

CASE STUDY: JR SIMPLOT (OTHELLO, WASHINGTON)

The JR Simplot plant in Othello, Washington provides a case study of the changes taking place in the agriculture and food processing industry; the workforce, training, and skill implications of these changes; and the use of industry and company specific skill standards.

Simplot's Othello plant makes french fries, tater tots, hash browns, and other potato products for customers such as McDonalds; and employs over 430 year round workers. It was originally owned by Carnation and then purchased by Nestle, as part of its strategy to break into the US food processing market. In 2000, Nestle sold the plant to Simplot, which now owns several large potato processing plants in the region.

JR Simplot and other potato processors in the area contract with local farmers to meet most of their annual potato requirements at a fixed price in the spring. The rest is purchased on the open market, allowing the plant flexibility, depending on sales. Large restaurant chains such as McDonalds wait until early fall to contract for their annual potato product purchases, however, so they can see what happens with the crop and bargain for the lowest possible price that will keep sufficient processors operating to maintain healthy competition. As a result of these practices, the economic situation of food processing plants is always somewhat marginal, with thin profit margins and limited resources to spend on items not absolutely essential to staying competitive.

Back in the Carnation days, human resource staff at the plant developed job descriptions, skill evaluations, qualification tests for jobs at the plant, and structured job training manuals to teach workers a particular job after they are hired or promoted into it. A large number of positions are covered by this system, including sanitation, shipping, machine operators, boiler/refrigeration mechanics, electrical/electronics/process control technicians, and several levels of mechanics. These skilled positions, plus their first line supervisors account for about 50 percent of the plant's workforce. Less skilled positions include trimmers; sanitation workers, who clean up potato bits that fall off the conveyor belts and clean the floors; and shipping department workers, who mainly deal with problems associated with automated packaging machines or load boxes onto pallets.

There has been an ongoing effort to upgrade the general skill level of the plant's workforce; this is achieved largely through more selective hiring. The plant provides more or less year round employment, but there is still a hiring surge in the early spring, which adds about 40 to 50 new hires. This seasonal pattern provides an opportunity to shift requirements for entry level workers, thereby upgrading the skill level over time.

New hires or workers being promoted through a bidding process once in the workforce are given a qualification test to determine if they are qualified for training in a particular skilled position. If an offer is made, then the worker goes through a structured training process with an experienced worker in that job or a team leader for that department, using the job training manual for that position. The combination of the qualification test and job training manual constitutes a "skill standard" for the position. These standards are unique to the plant, although in some cases there are state imposed licensing requirements that become de facto parts of the skill standard. For example, forklift operators must pass a written test once every three years and there is a move toward certification of electricians at the plant.

The plant is also devising its own performance review system.

Technology in use at the plant is changing rapidly, and this is having an impact on its workforce and skill and training requirements. For example, automated defect removal and other automated systems such as sorting systems and length analyzers have been introduced into the plant and made a big difference in its

labor requirements. In addition, computer systems and software have changed and more upgrades are on the way. Digital controls exist for most major pieces of equipment, and most of the machines are preset.

As new technologies have been introduced, a lot of in house training has been required. For example, in the past, the plant's stock room was run by two workers, with large card files for the several thousand different items in stock. Today, the plant operates 24x7. The number of parts stocked has increased and computerized systems are necessary. Two new storage rooms have been added to house the larger inventory of spare parts. As a result of these changes, stockroom staff now need to know Word and Excel, and learn complicated inventory applications. It has been difficult to keep the training manuals up to date since the technology changes so often, and that pace of change is expected to continue.

One benefit of the plant's skill standards and structured training process is that they make clear job ladders, as well as what is required to move up these ladders. Workers who want to learn a new job and trainers can quickly figure out what skills and training they need to acquire in order to move into the new job.

Another benefit is the documentation that takes place during the training process. This documentation can be very useful to human resources in the event that disciplinary actions are required down the road, due to poor performance. It can serve as a defense against accusations of unfair or prejudicial treatment and provide a way to resolve labor disputes.

Yet another benefit is that workers on different shifts or in different teams learn to do the job the same way, which makes it easier to problem solve when something isn't working right.

There are a few difficulties with the system. One is getting experienced workers to serve as trainers. The plant offers experienced workers an extra 50 cents an hour to provide training. However, they are having a hard time finding workers willing to do this. Some don't want to be in a position of evaluating a co-worker.

The basic skills and structured trainings for various positions also need to be kept up to date, which is a constant challenge.

Another difficulty is getting trainers and supervisors to use the qualification checklists; some come back with detailed information on how the trainee is doing, while others are returned with signatures and little else. No one is tested on physical qualifications (e.g., lifting ability); people simply sign a piece of paper saying that, yes, they meet those qualifications.

The plant is also having a difficult time filling the more skilled jobs, since incumbent workers do a lot of mandatory overtime and have no time to go to school.

In addition, interviews with workers at the plant suggest that not all workers are aware of skill standards and/or they're not always used. This suggests that, even if plants have skill standards, it's difficult to get them to the plant floor.

A manager at the Othello plant was familiar with the Northwest Food Processors Association skill standards and sees them as a potentially useful but generic resource. The same is true of the association's basic food processing course. It would be useful if entry level job applicants went through this training before applying for a job at the plant. Currently, much of the course's content is provided during employee orientation, since this is knowledge new workers need to immediately have.

POLICY IMPLICATIONS

Findings from the research and analysis suggest several strategies for closing skill gaps in the agriculture and food processing industry, and addressing its training needs. These include:

- *Make industry skill standards user friendly.*

  Skill standards need to be easy to use; otherwise, employers will not implement them. Employers need tools they can use right away, with little modification (e.g., skill checklists, assessment tools, and brief handbooks).

  For example, an assessment tool—linked to industry skill standards—could be created, so that employers could identify workers' current skill levels and the training needed to move into more skilled occupations. Such a tool could also be used to evaluate job applicants.

  Employers and unions need to be actively engaged in making skill standards user friendly. This requires providing incentives and making it easy for them to participate.

- *Conduct outreach around industry skill standards and provide firms tools and technical support to aid in their implementation and/or adaptation for company specific use.*

  Outreach efforts are required to promote greater awareness and understanding of industry skill standards among employers and workers. Firms also need tools and technical support to aid in their implementation of skill standards and/or their adaptation for company specific use (e.g., resource materials, videos, and trainers).

- *Pilot implementation of industry skill standards with a firm or group of firms.*

  One approach to moving industry skill standards forward is to pilot their implementation with a firm or group of firms that would fully commit to implementing them, in partnership with a community college and/or agency. Lessons could be learned about the implementation of skill standards and their impact, and then shared with others in the industry. Documenting the benefits of skill standards could motivate other firms to use them.

- *Expand adult basic education and English as a second language instruction, tied to workforce training.*

  There is a growing need for adult basic education and English as a second language (ABE/ESL) instruction, particularly given the increased use of technology in the industry. One approach is to tie ABE/ESL instruction to the further education and training required to move into more skilled occupations.

- *Provide incumbent workers retraining and upgrade training opportunities.*

  Given the industry practice of training and promoting entry level workers into more skilled occupations and the trend toward greater skill requirements (due in part to the increased use of technology), opportunities exist for community colleges to provide incumbent workers retraining and upgrade training.

Training needs to be made readily accessible and combine on the job training and classroom instruction. Workers also need to be provided incentives to take part in training (e.g., career advancement and wage progression opportunities, pay increases, and paid time for training).

- *Make training more accessible to employers and workers.*

  Training needs to be made available at convenient times and locations. This is particularly the case for agriculture and food processing employers and workers who work at plants located in rural communities scattered throughout the Northwest. Possible approaches include intensive onsite training, distance learning, and mobile training units.

  Another possibility is to use facilities in rural communities to take training to agricultural and food processing employers and workers in those communities, rather than requiring individuals to travel long distances to community colleges after work hours. This could be done in partnership with local industry.

- *Create career/wage ladders.*

  Career/wage ladders need to be created in broad skill areas, so that entry level workers can move into higher wage, higher skill occupations with the right combination of work experience and further education and training. These ladders need to be transparent, so that workers can clearly see the benefits of further education and training.

  The lack of clear career/wage ladders may contribute to the difficulty employers are having hiring and retaining workers.

  One approach is to develop horizontal career ladders, with cross skills training. For example, a forklift operator would have a clear path to follow to become a line mechanic and then a more skilled mechanic, or machinery maintenance mechanic.

APPENDIX A: ANNUAL AVERAGE EMPLOYMENT & FIRMS, 1990 – 2000

Agriculture & Food Processing Annual Average Employment

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Oregon											
Agriculture	29,903	31,383	31,987	33,522	35,276	35,667	37,641	39,636	40,725	41,778	42,606
Food Processing	24,710	25,329	25,139	25,361	25,695	25,399	25,910	25,463	25,048	24,494	23,861
All Industries	1,236,243	1,234,127	1,257,679	1,298,521	1,357,593	1,411,687	1,466,126	1,522,053	1,550,148	1,577,666	1,607,911
Washington											
Agriculture	75,216	72,896	76,395	79,213	81,051	79,631	82,522	84,298	89,640	84,718	86,749
Food Processing	37,625	37,401	37,549	38,729	40,076	41,392	41,883	41,371	40,006	40,579	40,942
All Industries	2,144,451	2,160,883	2,205,665	2,247,245	2,303,539	2,341,208	2,404,623	2,508,962	2,593,426	2,645,008	2,703,237

Agriculture & Food Processing Firms

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Oregon											
Agriculture	2,328	2,451	2,537	2,674	2,809	2,910	3,025	3,224	3,436	3,537	3,538
Food Processing	452	459	461	493	502	503	520	519	520	501	490
All Industries	82,632	85,244	87,660	91,249	95,719	98,813	102,005	107,816	111,215	111,047	108,432
Washington											
Agriculture	11,990	12,178	11,935	12,138	12,179	11,975	11,949	11,951	12,003	11,880	11,598
Food Processing	755	770	789	772	834	902	925	892	886	885	863
All Industries	143,470	147,100	154,213	166,709	177,354	180,895	183,612	195,780	211,193	217,516	225,268

Source: Covered Employment and Payroll reports from Employment Security agencies in Oregon and Washington.

APPENDIX B: EMPLOYMENT BY COUNTY, 2000

Idaho Agriculture & Food Processing Employment by County, 2000

	Total Employment	Agriculture	Percent of Total	Food Processing	Percent of Total
Idaho	549,411	17,408	3.2%	17,252	3.1%
Ada	172,845	627	0.4%	1,906	1.1%
Adams	809	*		0	
Bannock	30,050	73	0.2%	433	1.4%
Bear Lake	1,407	*		0	
Benewah	3,330	*		0	
Bingham	13,213	1,105	8.4%	1,895	14.3%
Blaine	11,286	75	0.7%	15	0.1%
Boise	1,162	*		0	
Bonner	11,520	*		283	2.5%
Bonneville	38,875	626	1.6%	459	1.2%
Boundary	3,390	194	5.7%	0	
Butte	5,687	*		0	
Camas	235	*		0	
Canyon	46,734	2,887	6.2%	3,772	8.1%
Caribou	2,965	63	2.1%	*	
Cassia	8,585	981	11.4%	769	9.0%
Clark	458	*		199	43.4%
Clearwater	2,875	*		0	
Custer	1,446	*		0	
Elmore	5,365	436	8.1%	347	6.5%
Franklin	2,418	151	6.2%	0	
Fremont	2,631	431	16.4%	0	
Gem	3,110	103	3.3%	*	
Gooding	5,073	1,437	28.3%	535	10.5%
Idaho	3,769	*		6	0.2%
Jefferson	4,911	1,081	22.0%	471	9.6%
Jerome	6,992	1,537	22.0%	340	4.9%
Kootenai	41,882	61	0.1%	44	0.1%
Latah	12,849	*		*	
Lemhi	2,119	*		*	
Lewis	1,104	*		0	
Lincoln	1,041	147	14.1%	58	5.6%
Madison	10,543	356	3.4%	*	
Minidoka	7,605	1,073	14.1%	1,607	21.1%
Nez Perce	20,649	89	0.4%	139	0.7%
Oneida	851	*		0	
Owyhee	2,467	963	39.0%	11	0.4%
Payette	5,617	246	4.4%	644	11.5%
Power	4,109	391	9.5%	446	10.9%
Shoshone	4,533	*		0	
Teton	1,614	127	7.9%	0	
Twin Falls	29,086	1,477	5.1%	2,400	8.3%
Valley	3,235	*		4	0.1%
Washington	2,888	354	12.3%	193	6.7%

Source: Annual Average Employment of Covered Workers in Idaho for 2000 by Industry and County (http://www.labor.state.id.us/lmi/es202)

Oregon Agriculture & Food Processing Employment by County, 2000

	Total Employment	Agriculture	Percent of Total	Food Processing	Percent of Total
Oregon	1,607,911	42,606	2.6%	23,861	1.5%
Baker	5,260	118	2.2%	0	
Benton	33,636	626	1.9%	79	0.2%
Clackamas	133,056	5,333	4.0%	790	0.6%
Clatsop	15,479	77	0.5%	481	3.1%
Columbia	10,115	81	0.8%	831	8.2%
Coos	21,192	161	0.8%	378	1.8%
Crook	6,336	93	1.5%	0	
Curry	6,338	153	2.4%	49	0.8%
Deschutes	51,901	661	1.3%	138	0.3%
Douglas	37,751	430	1.1%	183	0.5%
Gilliam	740	5	0.7%	0	
Grant	2,677	28	1.0%	0	
Harney	2,865	155	5.4%	0	
Hood River	10,417	1,742	16.7%	214	2.1%
Jackson	73,614	1,636	2.2%	466	0.6%
Jefferson	6,642	377	5.7%	0	
Josephine	22,370	416	1.9%	125	0.6%
Klamath	23,722	737	3.1%	184	0.8%
Lake	2,350	55	2.3%	0	
Lane	139,697	1,600	1.1%	1,575	1.1%
Lincoln	16,949	64	0.4%	327	1.9%
Linn	41,237	1,344	3.3%	976	2.4%
Malheur	13,398	1,279	9.5%	1,465	10.9%
Marion	127,535	8,168	6.4%	4,400	3.5%
Morrow	3,169	305	9.6%	745	23.5%
Multnomah	453,254	3,536	0.8%	4,518	1.0%
Polk	16,002	778	4.9%	704	4.4%
Sherman	669	0		0	
Tillamook	8,092	282	3.5%	618	7.6%
Umatilla	28,965	2,371	8.2%	2,451	8.5%
Union	9,686	293	3.0%	0	
Wallowa	2,272	60	2.6%	0	
Wasco	10,225	1,138	11.1%	290	2.8%
Washington	224,015	5,523	2.5%	1,704	0.8%
Wheeler	310	13	4.2%	0	
Yamhill	28,635	2,768	9.7%	897	3.1%

Source: Summary Covered Employment and Payroll Report, Oregon 2000 (http://www.qualityinfo.org/olmisi/CEP)

Washington Agriculture & Food Processing Employment by County, 2000

	Total Employment	Agriculture	Percent of Total	Food Processing	Percent of Total
Washington	2,703,237	86,749	3.2%	40,942	1.5%
Adams	7,006	1,983	28.3%	973	13.9%
Asotin	5,147	0		*	
Benton	61,854	5,045	8.2%	2,116	3.4%
Chelan	36,021	4,758	13.2%	445	1.2%
Clallam	20,180	219	1.1%	120	0.6%
Clark	113,758	1,352	1.2%	1,179	1.0%
Columbia	1,735	98	5.6%	0	
Cowlitz	38,566	540	1.4%	*	
Douglas	8,910	2,707	30.4%	*	
Ferry	1,754	*		*	
Franklin	21,705	5,172	23.8%	1,292	6.0%
Garfield	848	*		0	
Grant	30,370	6,974	23.0%	3,263	10.7%
Grays Harbor	23,661	0		314	1.3%
Island	14,048	0		*	
Jefferson	7,889	124	1.6%	32	0.4%
King	1,163,663	8,329	0.7%	13,447	1.2%
Kitsap	71,991	723	1.0%	*	
Kittitas	11,822	752	6.4%	*	
Klickitat	6,007	506	8.4%	*	
Lewis	24,885	554	2.2%	494	2.0%
Lincoln	2,860	332	11.6%	*	
Mason	12,088	101	0.8%	261	2.2%
Okanogan	17,021	3,988	23.4%	27	0.2%
Pacific	6,070	33	0.5%	403	6.6%
Pend Oreille	2,681	*		*	
Pierce	237,706	3,026	1.3%	1,688	0.7%
San Juan	4,918	65	1.3%	*	
Skagit	43,759	3,305	7.6%	1,268	2.9%
Skamania	2,047	0		*	
Snohomish	209,317	2,810	1.3%	1,392	0.7%
Spokane	188,844	1,625	0.9%	1,693	0.9%
Stevens	9,992	117	1.2%	*	
Thurston	84,231	1,566	1.9%	773	0.9%
Wahkiakum	811	*		0	
Walla Walla	24,023	2,377	9.9%	*	
Whatcom	67,954	2,919	4.3	1,438	2.1%
Whitman	15,308	406	2.7%	*	
Yakima	94,243	18,752	19.9%	4,251	4.5%

Source: Employment and Payroll in Washington State by County (http://www.wa.gov/esd/lmea)

APPENDIX C: INDUSTRY & OCCUPATION PROJECTIONS

As part of the Eastern Washington Agriculture and Food Processing Partnership's skill standards project, the Northwest Policy Center examined the current size and outlook for agriculture and food processing industries and occupations in the Northwest.

Long term projections from three state agencies provide a view of the current size and outlook for both industries and occupations:

- Idaho Department of Labor,
- Oregon Employment Department, and
- Washington Employment Security Department.

These three agencies all operate labor market information programs under the US Department of Labor's guidelines. However, because these three states are of different sizes, they conduct their work using somewhat different procedures. In addition, less detailed information tends to be available in smaller states such as Idaho. Thus, the tables below provide the most detail for Washington, the least for Idaho, and an intermediate level of detail for Oregon. The three states are also on somewhat different cycles in publishing the results of their long term forecasts. Thus, the base year (the last year of historical data) and forecast years are different for the three states.

In addition, NPC has access to certain confidential data files for Washington under a data sharing agreement with the Employment Security Department. One of those confidential files is an industry by occupation matrix that shows the utilization of each occupational group within each industry. By using this matrix, we identified the largest occupational groups in agriculture and food processing industries. Assuming that the occupational patterns are the same in comparable industry sectors in the two neighboring states, we then pulled out occupational forecast detail for the largest occupations in these sectors from the statewide all-industry occupational forecasts for all three states. In Idaho forecasts in particular, not every occupation identified as significant in Washington can be found due to the small state limitations discussed above. Hence, fewer occupational groups are listed for Idaho.

Analysis of Washington state's occupational data shows that over 83,000 workers are expected to be employed in agriculture in the state in the year 2008, with nearly 36,000 or 43 percent in a single occupation—Farmworkers, Food and Fiber Crops, as shown in Table 1. Other major occupations include landscaping and groundskeeping laborers, farmworkers who take care of farm and ranch animals, farm equipment operators, graders and sorters of agricultural products, and pruners.

In food processing, the occupational distribution is more diverse, with no single occupation accounting for as large a portion of the industry's workforce as is the case in agriculture. The top 10 occupations in agriculture account for 77 percent of the sector's workforce, compared to only 53 percent for the top 10 occupations in food processing. The five largest occupations include cannery workers, meat cutters, packaging machine operators, hand packers, and industrial truck and tractor operators, as shown in Table 2.

Table 1: Largest Agriculture & Food Processing Occupations in Washington

OES Code	Title	2008 Projection
Agriculture		
79856	Farmworkers, Food & Fiber Crops	35,711
79041	Laborers, Landscaping & Groundskeeping	6,286
79858	Farmworkers, Farm & Ranch Animals	4,916
79021	Farm Equipment Operators	4,133
79011	Graders & Sorters, Agricultural Products	2,496
79033	Pruners	2,358
72002	First Line Supervisors & Managers, Agriculture	2,316
79031	Hand Packers/Packagers, Agricultural Products	2,160
79036	Sprayers/Applicators	1,903
79999	All Other Agricultural & Related Workers	1,532
19005	General Managers & Top Executives	1,527
98902	Hand Packers & Packagers	1,303
79017	Animal Caretakers, Except Farm	1,263
98999	All Other Helpers, Laborers, & Material Movers	1,028
55338	Bookkeeping, Accounting, & Auditing Clerks	970
32114	Veterinarians & Veterinary Inspectors	909
85321	Farm Equipment Mechanics	908
79806	Veterinary Assistants	813
55305	Receptionists & Information Clerks	800
55347	General Office Clerks	665
97102	Truck Drivers, Heavy or Tractor-Trailer	660
97947	Industrial Truck & Tractor Operators	619
32951	Veterinary Technicians & Technologists	596
55108	Secretaries, Except Legal & Medical	468
13005	Personnel, Training, & Labor Relations Managers	424
	Top 10 Occupations	63,811
	% of Total	76.8%
	Top 25 Occupation	76,764
	% of Industry Total	92.4%
	All Agricultural Workers	83,109

Table 2: Largest Agriculture & Food Processing Occupations in Washington

OES Code	Title	2008 Projection
Food Processing		
93935	Cannery Workers	7,078
93938	Meat Cutters	3,898
92974	Packaging Machine Operators	3,120
98902	Hand Packers	2,766
97947	Industrial Truck & Tractor Operators	1,667
98999	All Other Helpers & Laborers	1,534
85119	All Other Machinery Maintenance Mechanics	1,334
81008	First Line Supervisors—Production & Operating Workers	1,263
89805	Bakers, Manufacturing	1,247
97102	Truck Drivers, Heavy & Tractor-Trailer	1,048
98799	All Other Freight, Stock, & Material Movers	869
19005	General Managers & Top Executives	795
89802	Slaughterers & Butchers	737
98502	Machine Feeders & Offbearers	734
83005	Production Inspectors, Testers, & Graders	692
89808	Food Batchmakers	622
97105	Truck Drivers, Light, including Delivery & Route Workers	621
98905	Vehicle Washers & Equipment Cleaners	619
58028	Shipping, Receiving, & Traffic Clerks	613
85132	Maintenance Repairers, General Utility	574
49008	Sales Representatives, Except Retail & Scientific	567
49011	Salespersons, Retail	558
92917	Cooking Machine Operators & Tenders	546
67005	Janitors & Cleaners, Except Maids & Housekeeping	542
15014	Industrial Production Managers	534
	Top 10 Occupations	24,955
	% of Total	52.6%
	Top 25 Occupation	34,578
	% of Industry Total	72.9%
	All Food Processing Workers	47,408

The agriculture and food processing industry is not expected to be a major source of future growth in the workforce. In all three Northwest states, total employment is expected to expand more rapidly than employment in either agriculture or food processing. However, detailed sector by sector projections are quite different in the three states, as shown in Table 3.

In agriculture, Idaho expects to see a 12 percent expansion from 1998 to 2008, while Washington projects no change. Oregon's projections from 2000 to 2010 do not include agricultural jobs at all.

In food processing, Idaho projects a four percent expansion from 1998 to 2008, while Washington forecasts a 10 percent expansion. Oregon, using a slightly different forecast period (2000 to 2010), projects about a five percent decline in food processing employment.

Table 3: Agriculture & Food Processing Industry Projections

SIC Title	Current Employment	Projected Employment	Numeric Change	Percent Change
Idaho	1998	2008		
Total Employment	600,750	786,680	185,930	30.9%
Agricultural Production Crops	17,140	19,270	2,130	12.4%
Food & Kindred Products	17,280	17,980	700	4.1%
Oregon	2000	2008		
Total Employment (Nonfarm)	1,602,700	1,803,000	200,300	12.5%
Food & Kindred Products	23,900	22,800	-1,100	-4.6%
Canning & Preserving	13,600	12,600	-1,000	-7.4%
Other Food Products	10,300	10,200	-100	-1.0%
Washington	1998	2008		
Total Employment	3,058,072	3,618,900	560,828	18.3%
Agricultural Production Crops	66,452	66,479	27	0.0%
Cash Grains	2,889	2,793	-96	-3.3%
Field Crops, Except Cash Grains	6,538	6,745	207	3.2%
Vegetables & Melons	3,330	3,110	-220	-6.6%
Fruits & Tree Nuts	39,704	40,358	654	1.6%
Horticultural Specialties	5,545	5,187	-358	6.5%
General Farms, Primarily Crop	3,728	3,742	14	0.4%
Livestock, Except Dairy & Poultry	1,095	1,017	-78	-7.1%
Dairy Farms	3,623	3,527	-96	-2.6%

Table 3: Agriculture & Food Processing Industry Projections

SIC Title	Current Employment	Projected Employment	Numeric Change	Percent Change
Washington				
Food & Kindred	40,419	44,467	4,048	10.0%
Meat Products	4,577	5,741	1,164	25.4%
Dairy Products	1,739	1,770	31	1.8%
Preserved Fruits & Vegetables	13,576	15,618	2,042	15.0%
Grain Mill Products	1,795	1,940	145	8.1%
Bakery Products	3,229	3,231	2	0.1%
Sugar & Confectionery Products	854	895	41	4.8%
Fats & Oils	277	296	19	6.9%
Beverages	3,227	3,153	-74	-2.3%
Misc. Food & Kindred Products	11,145	11,823	678	6.1%

Turning to the occupational projections, projected job openings due to growth are quite modest, as shown in Table 4, since projected expansion, if any, over the forecast period is quite modest. However, workers also have to be replaced as they retire or move on to jobs in other occupations. Replacement openings in agriculture and food processing are quite substantial in Oregon and Washington, but much smaller in Idaho.

The estimates for Washington and Oregon suggest that substantial education and training demand could exist given the number of annual openings in several occupational categories.

Table 4: Agriculture & Food Processing Occupational Projections

	Current Employment	Projected Employment	Growth Openings	Replacement Openings
Idaho	1998	2008		
Agriculture				
Pruners	290	380	10	10
Sprayers/Applicators	360	440	10	10
Food Processing				
Cannery Workers	1,320	1,220	-10	0
Meat/Poultry/Fish Cutters, Hand	410	540	13	10
Hand Packers & Packagers	3,800	4,480	68	70
Industrial Truck & Tractor Operators	2,200	2,470	27	30
Oregon	2000	2008		
Agriculture				
Graders & Sorters, Agriculture	2,592	2,945	35	90
Farm Equipment Operators	1,495	1,597	10	48
Pruners—Trees & Vines	582	743	16	20
Sprayers/Applicators, Agriculture	465	587	12	17
Farmworkers—Food & Fiber Crops	13,489	15,722	223	446
Farmworkers—Farm & Ranch Animals	2,652	3,081	43	85
Food Processing				
Cannery Workers	5,898	5,840	-6	172
Hand Cutters—Meat & Poultry	754	781	3	18
Packaging/Filling Machine Operators	3,495	3,505	1	122
Hand Packers & Packagers	8,894	9,240	35	334
Industrial Truck & Tractor Operators	8,160	8,348	19	158
Other Helpers, Laborers & Movers	21,558	24,282	272	1,044
Maintenance Mechanics	5,994	5,877	-12	184
First Line Supervisors, Prod & Operating	8,957	9,081	12	335
Bakers	561	605	4	4
Truck Drivers, Heavy & Tractor Trailer	23,612	26,681	307	569

Table 4: Agriculture & Food Processing Occupational Projections

Washington	Current Employment 2000	Projected Employment 2008	Growth Openings	Replacement Openings
Agriculture				
Graders & Sorters, Agriculture	7,175	7,562	48	249
Farm Equipment Operators	5,254	5,130	-16	170
Hand Packers & Packagers, Agriculture	2,274	2,198	-9	55
Pruners	2,713	2,738	3	95
Sprayers/Applicators	2,030	2,092	8	74
Farmworkers, Food & Fiber Crops	38,869	38,135	-93	1,285
Farmworkers, Farm & Ranch Animals	5,853	5,704	-19	188
Food Processing				
Cannery Workers	3,420	3,439	2	100
Hand Cutters—Meat, Poultry & Fish	2,686	2,661	-3	64
Packaging/Filling Machine Operators	6,409	6,727	40	223
Hand Packers & Packagers	18,919	20,510	198	710
Industrial Truck & Tractor Operators	9,943	10,535	74	192
Helpers/Laborers, Material Movers, NEC	31,830	34,867	381	1,541
Machinery Maintenance Mechanics, NEC	6,629	6,995	45	204
First Line Supervisors, Prod & Operating	16,773	17,671	112	628
Bakers, Manufacturing	1,072	1,015	-7	7
Truck Drivers, Heavy & Tractor-Trailer	35,882	38,582	337	865

APPENDIX D: EMPLOYER SURVEY RESULTS

As part of the Eastern Washington Agriculture and Food Processing Partnership's skill standards project, the Northwest Policy Center conducted a survey of agriculture and food processing employers on their workforce, training, and related needs. Those surveyed were all members of the Northwest Food Processors Association and a sample of members of the Washington Growers League.

The survey had a response rate of 46 percent (148 out of 322). Characteristics of those responding to the survey include:

- Fifty four percent are agriculture firms; 46 percent are food processing firms.

- Twenty one percent are wholly or partially unionized. All firms with unionized workforces are in food processing. Firms with unionized workforces are more likely to be large. About half of firms with unionized workforces have 200 or more year round employees, compared to about one quarter of all firms.

- Thirty eight percent have one to 29 employees, based on year round employment figures. Another 26 percent have 30 to 99 employees; 13 percent have 100 to 199 employees; and 23 percent have 200 or more employees. Based on peak employment figures, only eight percent have one to 29 employees; 25 percent have 30 to 99 employees, 19 percent have 100 to 199 employees, and 49 percent have 200 or more employees.

  Firm size varies by sector. Food processing firms are more likely to be larger. For example, 56 percent of food processing firms have 100 or more year round employees, compared to 15 percent of agriculture firms.

Hiring & Retention

Employers report significant difficulty hiring skilled and semi-skilled workers. Eighty six percent of food processing employers and 80 percent of agriculture employers report difficulty hiring skilled and semi-skilled workers. A higher portion of food processing employers report considerable difficulty hiring skilled and semi-skilled workers.

Hiring & Retention of Skilled & Semi-Skilled Workers

	Considerable Difficulty	Moderate Difficulty	No Difficulty
Hiring			
Agriculture	10%	68%	22%
Food Processing	37%	49%	14%
All	26%	57%	18%
Retention			
Agriculture	9%	47%	43%
Food Processing	9%	53%	38%
All	9%	50%	41%

Retention of skilled and semi-skilled workers is also an issue. Sixty two percent of food processing employers and 56 percent of agriculture employers percent report difficulty retaining semi-skilled and skilled workers.

In general, employers report less difficulty hiring and retaining entry level workers. For example, only 35 percent of agriculture employers report difficulty hiring entry level workers. However, food processing employers report retention of entry level workers is more of an issue for them than retention of skilled and semi-skilled workers. Seventy one percent report difficulty retaining entry level workers, compared to 62 percent for skilled and semi-skilled workers.

Hiring & Retention of Entry Level Workers

	Considerable Difficulty	Moderate Difficulty	No Difficulty
Hiring			
Agriculture	4%	31%	65%
Food Processing	9%	47%	44%
All	6%	38%	55%
Retention			
Agriculture	7%	41%	53%
Food Processing	8%	63%	30%
All	7%	51%	42%

Specific occupations for which employers report difficulty hiring and retaining workers include skilled mechanics, technicians, and machine operators (e.g., electronics technicians, PLC technicians, skilled electricians, mechanics, and machine operators).

Difficulty Hiring & Retaining Workers by Targeted Occupations

	Hiring			Retaining		
	Considerable Difficulty	Moderate Difficulty	No Difficulty	Considerable Difficulty	Moderate Difficulty	No Difficulty
Agriculture						
Operator (Machine/Process)	9%	60%	31%	7%	39%	55%
Ammonia Refrigeration	31%	13%	56%	13%	27%	60%
Electronics Technician	33%	27%	40%	13%	47%	40%
Mechanic Level I	23%	48%	30%	14%	36%	50%
Mechanic Level II	30%	46%	24%	15%	44%	41%
Mechanic Level III	29%	33%	38%	23%	27%	50%
Irrigation Technologist	16%	30%	54%	13%	34%	53%
Turf Management Technician	*	*	*	*	*	*
Turf Equipment Service Technician	*	*	*	*	*	*
Agriculture Equipment Technician	26%	49%	26%	8%	44%	49%
Agricultural Mechanic	22%	48%	31%	14%	42%	44%
Diesel Equipment Mechanic	36%	36%	27%	15%	49%	36%
Farm Manager	18%	36%	46%	16%	27%	57%

Difficulty Hiring & Retaining Workers by Targeted Occupations

	Hiring			Retaining		
	Considerable Difficulty	Moderate Difficulty	No Difficulty	Considerable Difficulty	Moderate Difficulty	No Difficulty
Food Processing						
Inspection/Sorter	5%	33%	62%	7%	41%	52%
Sanitation Worker	10%	48%	43%	9%	52%	39%
Laboratory Technician	18%	50%	32%	7%	36%	57%
Operator (Machine/Process)	18%	56%	27%	10%	47%	43%
Packaging Technician	18%	44%	38%	4%	46%	50%
Ammonia Refrigeration	41%	45%	14%	8%	33%	59%
Boiler Operator	33%	46%	21%	11%	37%	53%
Electronics Technician	46%	42%	12%	16%	46%	38%
PLC Technician	56%	35%	9%	17%	46%	37%
Skilled Electrician	56%	32%	12%	28%	40%	33%
Mechanic Level I	15%	64%	20%	9%	47%	44%
Mechanic Level II	31%	56%	14%	12%	42%	46%
Mechanic Level III	41%	44%	15%	17%	40%	43%

* Too few responses to report results

Occupational Demand

Many of the occupations for which employers currently report difficulty hiring and retaining workers are the same ones for which they expect demand to grow in the next five years; these include skilled mechanics, technicians, and machine operators (e.g., electronics technicians, PLC technicians, machine operators, and mechanics).

Among the occupations for which demand is expected to decline are inspection/sorter, packaging technicians, irrigation technologists, sanitation workers, and farm managers.

Projected Demand for Targeted Occupations

	Increase	Stay the Same	Decrease
Agriculture			
Operator (Machine/Process)	51%	42%	7%
Ammonia Refrigeration	38%	62%	0%
Electronics Technician	68%	32%	0%
Mechanic Level I	41%	55%	5%
Mechanic Level II	50%	44%	6%
Mechanic Level III	48%	48%	4%
Irrigation Technologist	44%	44%	11%
Turf Management Technician	*	*	*
Turf Equipment Service Technician	*	*	*
Agriculture Equipment Technician	48%	46%	7%
Agricultural Mechanic	45%	50%	5%
Diesel Equipment Mechanic	53%	43%	5%
Farm Manager	44%	46%	10%

Projected Demand for Targeted Occupations

	Increase	Stay the Same	Decrease
Food Processing			
Inspection/Sorter	17%	63%	20%
Sanitation Worker	35%	56%	10%
Laboratory Technician	39%	56%	5%
Operator (Machine/Process)	48%	43%	9%
Packaging Technician	39%	48%	13%
Ammonia Refrigeration	28%	67%	4%
Boiler Operator	27%	66%	7%
Electronics Technician	50%	46%	5%
PLC Technician	63%	38%	0%
Skilled Electrician	37%	63%	0%
Mechanic Level I	39%	57%	3%
Mechanic Level II	36%	60%	5%
Mechanic Level III	31%	66%	3%

Sources of Skilled & Semi-Skilled Workers

Most employers—61 percent—report their primary source of skilled and semi-skilled workers is training and promoting entry level workers from within the company. This is followed by hiring experienced workers from other employers, either in the agriculture and food processing industry or other industries (22 percent); and hiring off the street (seven percent). Only five percent report hiring high school, community and technical college, private technical institute, and/or four year college graduates as their primary source of skilled and semi-skilled workers.

Primary Source of Skilled & Semi-Skilled Workers

Training and promoting entry level workers from within	61%
Hiring experienced workers from other employers in the ag/food industry	15%
Hiring experienced workers from other industries	7%
Off the street in response to advertising	7%
Other (temp agencies, referrals, word of mouth)	5%
Hiring community/technical college and private technical institute graduates	4%
Hiring high school vocational program graduates	1%
Hiring four year college and university graduates	0%
Training and promoting entry level workers from other locations owned by same company	0%

In terms of recruitment methods, employers report they are most likely to use (either frequently or occasionally) employee referrals for their skilled and semi-skilled job openings (89 percent). This is followed by newspaper advertising (62 percent) and employment center advertising (42 percent). Least frequently used methods are temporary visa programs, company web sites, Internet job postings, and trade associations.

Recruitment Methods

	Frequently	Occasionally	Seldom	Never
Newspaper Advertising	40%	22%	17%	21%
Employee Referrals	39%	50%	5%	6%
Employment Center Advertising	18%	24%	18%	39%

Recruitment Methods

Temp Agencies	17%	17%	14%	52%
Trade Journal Advertising	13%	0%	21%	65%
Company Web Site	5%	5%	13%	77%
Community Based Organizations	2%	14%	26%	58%
Internet Job Postings	2%	11%	13%	74%
Temporary Visa Programs	2%	1%	11%	86%
Plant Closures	1%	22%	19%	58%
Trade Associations	1%	10%	18%	71%

About one third of employers report the public image of the agriculture and food processing industry significantly impairs their ability to recruit applicants for their job openings.

Skill & Training Needs

Employers report their current workers lack a range of skills. Almost 60 percent of employers report their current workforce lacks general academic skills such as reading, writing, math, computer skills, and critical thinking skills. Almost one third report they lack communication skills. And about one quarter report they lack the skills required to operate production equipment or inspection/test processes; the skills required to clean and maintain equipment or the work environment; and employability skills such as punctuality, work ethic, and personal integrity.

Skill Needs

	Not Needed	Need Currently Met	Unmet Need
General Academic Skills	6%	35%	58%
Communication	7%	61%	32%
Operation/Inspection/Testing	16%	57%	27%
Cleaning & Maintenance	2%	73%	25%
Employability Skills	7%	69%	24%
Administration/Record Keeping/ Quality Control	9%	71%	19%

Food processing employers are somewhat more likely to report skill gaps. For example, 66 percent of food processing employers report their current workforce lacks general academic skills, compared to 51 percent of agriculture employers.

Unmet Skill Needs by Sector

	Agriculture	Food Processing
General Academic Skills	51%	66%
Communication	24%	40%
Operation/Inspection/Testing	21%	33%
Cleaning & Maintenance	26%	24%
Employability Skills	18%	31%
Administration/Record Keeping/ Quality Control	16%	23%

Most employers report they are likely to use on the job training to meet their unmet skill needs. The exception is general academic skills, where employers report they expect to use on the job training, community

and technical colleges, community based organizations, and/or private training providers. Firms with 100 or more employees are somewhat more likely to report that they expect to use community and technical colleges to meet their unmet general academic skill needs.

In addition, a significant portion of employers reports their current workforce has limited English proficiency. This is particularly the case for agriculture employers. About 90 percent of agriculture employers report that at least 40 percent of their workforce cannot read English at an adequate level; and about 80 percent report that at least 40 percent of their workforce cannot speak English at an adequate level. Comparable figures for food processing employers are 44 and 34 percent, respectively.

Skill Standards

About one third of employers report familiarity with industry skill standards. Food processing employers are much more likely to be familiar with skill standards than agriculture employers. Fifty eight percent of food processing employers are familiar with skill standards, compared to 14 percent of agriculture employers.

Food processing employers familiar with industry skill standards report they are most useful in making decisions about training, followed by employee performance, employment, and pay.

Food Processing Employers Use of Skill Standards

	Very Useful	Somewhat Useful	Not Useful	Don't Know
Employment	6%	56%	18%	21%
Pay	9%	38%	32%	21%
Employee Performance	15%	47%	18%	21%
Training	24%	44%	12%	21%

Follow up interviews with employers suggest that although a number of employers are familiar with industry skill standards, their actual use is limited.